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THIRD MEMORANDUM ON THE DOUGLAS FIR TUSSOCK MOTH OUTBREAK NEAR TROY, OREGON

By

R. L. Furniss & W. J. Buckhorn

April 25, 1947

During the period April 16 to 21 Buckhorn and Furniss visited the Troy area to obtain additional data on the overwintering tussock moth population. Two days, April 19 and 20, were spent making the actual examination. Adverse conditions in the form of impassable roads and deep snow seriously hampered the work.

Observations were confined to that part of the outbreak in and surrounding the center of heavy infestation (see map in the second memorandum, dated April 10). More extensive sampling, although highly desirable, was impossible. Since much of the back country in the western part of the infested area cannot be reached until mid May - possibly not until late May - it is advisable to consider control on the basis of the facts known to date. Further delay would make impossible the organizing of a control project, if indeed it is not already too late to organize one effectively.

The recent findings bear out Buckhorn's preliminary observations made in the fall of 1946 that the outbreak is continuing and threatens to kill much timber in 1947. This conclusion is based upon general observations and the opinions of the observers, for no method of accurately measuring a tussock moth population has yet been devised.

Local report has it that the infestation developed in 1945; however, it is believed that most of the feeding occurred in 1946. Since major outbreaks in the past have run three to four years, it is logical to expect the present outbreak to continue one or two more years.

On the area where the heaviest feeding occurred in 1946 much Douglas-fir and white fir of all sizes is dead or dying. Most of the still living trees probably will succumb either to the tussock moth, the eggs of which are present in large numbers, or to the attacks of bark beetles. On the moderately defoliated area surrounding the heavy center, the heaviest deposits of eggs occur; consequently, heavy loss of timber is anticipated in 1947. The heavy deposit of eggs tapers off into the lightly defoliated areas where the eggs are relatively few - too few to cause any serious kill in 1947. These conclusiosn are based on limited sampling, but are in line with the known habits of the Douglas-fir tussock moth and similar defoliators.

Before proceeding with a discussion of control on the Troy area, it is well to consider a few basic principles that apply to defoliator outbreaks in the forests of the Northwest. Such outbreaks, including those of the Douglas-fir tussock moth, are characterized as follows:

(1) They are of short duration - two to four years being the usual run.

(2) Spread is in concentric fashion and is very rapid at first.

(3) By the end of the second year of heavy feeding the ultimate extent of infestation can be fairly well forecast. From then on, relatively little damage develops on newly infested areas.

(4) Once the major spread has occurred, little is gained by trying to stop further spread. About the best that can be done is to protect valuable stands that are imminently threatened by further feeding.

(5) Natural factors such as disease, parasites, and starvation terminate the outbreaks, often with spectacular suddenness.

(6) Various considerations such as the vigor of the population, feasibility of treating, prospects of salvage, operability and value of the timber, management plans, and fire hazard determine whether control should be undertaken, and to what extent.

Applying these principles to the Troy area, we have a situation that shapes up about as follows. The outbreak is entering its third year with an apparently vigorous population that immediately threatens a sizeable block of timber. The prospects are that the outbreak will subside late this season, after most of the feeding is over, or in 1948. Relatively little spread is anticipated beyond the 56,000 acres already infested in varying degrees. Most of the outlying parts of the area harbor too light an infestation to be a serious threat - at least not in 1947. Much of the area is in precipitous canyons and is inoperable both for logging and control. This leaves a rather solid block of operable and relatively valuable timber on the plateau between the Grande Ronde and Wenaha Rivers. According to the Forest Service, extensive salvage is not feasible on this area; hence, cannot be further considered as an alternative to control. A serious fire hazard already exists in the thickets of dead pole-sized fir. Further feeding by the tussock moth will increase this hazard. Thus the bulk of the evidence points toward control on a limited basis.

From the available information it is not possible to delineate exactly the area in need of control. Further ground sampling will be necessary to do that. Our best estimate is that some 14,000 acres is the gross acreage in need of treatment. Of this, some 68 percent is National Forest land and the rest is privately owned. The stand of Douglas-fir and white fir averages about 2500 board feet per acre - some 35,000,000 board feet in all.

The only feasible control is by airplane spraying with DDT. Even that is not feasible at this late date unless it is possible to tie in with the large-scale project that has been organized to control the tussock moth in Region 1. Incidentally, the two outbreaks are approximately 65 miles apart, airline. Presumably the cost on the Troy area would run somewhat under $2.00 per acre or about $1.00 per thousand board feet for the timber protected. Probably $25,000 would cover the entire project.

Further consideration of possible sites for an airfield from which to operate spray planes reveals that the ranch lands on the bench on the north side of the Wenaha are the only feasible ones. These are some 55 miles from Lewistown, Idaho, the nearest rail head.

Recommendations

Assuming that the timber values warrant, that applying the spray is physically possible, and that arrangements can be made with Region 1, it is recommended that control be undertaken on some 14,000 acres - the exact acreage to be determined by further ground work in May.

It is also recommended that detailed studies be made on both the treated and untreated areas to determine the effects of control and to follow the course of infestation.

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